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EXAMINER	
ANDERSON, DENISE R	
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1797	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/594,880	SCHAFER ET AL.	
	Examiner	Art Unit	
	Denise R. Anderson	1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 July 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *11-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *11-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 September 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☒ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Drawings

2. The drawings were received on July 6, 2009. These drawings are acceptable.

Claim Objections

3. Claim 15 was amended such that the previous objection is withdrawn.

Claim Rejections - 35 USC § 112

4. Claim 14 was amended such that the previous indefiniteness rejection under 35 U.S.C. 112, second paragraph, is withdrawn.

5. Claim 17 was amended such that the previous indefiniteness rejection under 35 U.S.C. 112, second paragraph, is withdrawn.

Claim Rejections - 35 USC § 102

6. Claims 11-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Rabie et al. (U.S. Patent Pub. No. 2003/0127389 A1, Jul. 10, 2003).

7. In Table 1 below, the method's recited equipment structure is keyed to that of the prior art. Claim 11 follows in italics with the keyed structure underlined. The patentability analysis is next. The remaining dependent claims follow in similar fashion.

Table 1: Keys structure used to implement method to that of Rabie et al.	
Structure used to implement method.	***Prior art structure used to implement method.***
Membrane filter system – Fig. 1, membrane filter system 1.	***Membrane filter system*** – Fig. 1A, reactor 10.
Membrane module – Fig. 1, membrane modules 4. ***Membrane*** – Fig. 1, membranes shown in membrane module 4.	***Membrane module*** – Fig. 1A, membrane modules 20. ***Membrane*** – Fig. 1A, membranes 6.
Source – Fig.. 1, blower 6.	***Source*** – Fig. 1A, air source 42; Figs. 2 and 4C, air supply 242.
Valves – Fig. 1, valve 8. ***Control valves*** – Fig. 1, control valve 8.	***Valves*** – Fig. 2, valve set 254. Fig. 4C, valves 284. ***Control valves*** – Fig. 2, valve set 254 with valve controllers 256. Fig. 4C, valves 284 with device 280.
Feed lines – Fig. 1, feed lines 7.	***Feed lines***–Figs. 1A, 2, and 4C; air delivery branch 240.

Claim 11 (currently amended): Method for aerating multiple membrane modules of a membrane filter system operating in submerged operation,

whereby air or a gas is supplied to the membrane modules from a common source, which air or gas rises in the liquid to be purified, in the form of bubbles, on the outside of the membrane, and

whereby valves are disposed in the feed lines to the membrane modules, which valves are activated according to a predetermined circuit schematic,

whereby control valves are used as valves, which can assume only either the open or closed position, and thus release or block the supply of air to an assigned membrane module,

wherein in a first method step, the control valve assigned to a first membrane module is open, while the control valves of all the other membrane modules are closed, so that aeration of the first membrane module takes place,

wherein at the beginning of a second method step, the control valve assigned to a second membrane module is additionally opened, so that during this method step,

two control valves are open at the same time and two essentially stationary partial air streams occur, with which the first and the second membrane module are impacted,

wherein at the beginning of a third method step, the control valve assigned to the first membrane module is closed, for aeration of the second membrane module, and

wherein all of the membrane modules are aerated in accordance with the three method steps, one after the other, until the aeration cycle starts anew with the first membrane module.

8. Regarding claim 11, Rabie et al. discloses, "[A] cyclic aeration system that may be used for aerating ultrafiltration and microfiltration membranes modules immersed in tank water in a tank." Rabie et al., ¶ 9, lines 1-4. Rabie et al. further teaches, "Air bubbles are introduced to the tank through aerators mounted below the membrane modules and connected by conduits to an air blower." Rabie et al., ¶ 4, lines 1-3. In other words, Rabie et al. discloses a method for aerating multiple membrane modules submerged in a tank where the air is supplied to the outside of the membranes from a common source, an air blower, as recited.

9. In Figs. 1-8, Rabie et al. discloses that valves are disposed in the air lines and activated according to a predetermined circuit schematic, as recited, when Rabie et al. states, "The cyclic aeration system uses a valve set (Fig. 2, 254) and a valve set controller (Fig. 2, 256) to connect an air supply (Fig. 2, 242) to a plurality of distinct branches (Fig. 2, air delivery branches 240) of an air delivery network (Fig. 2). The distinct branches of the air delivery network are in turn connected to aerators (Fig. 2, 238) located below the membrane modules. While the air supply is operated to supply a steady initial flow of air, the valve set and valve set controller split and

distribute the initial air flow between the distinct branches of the air distribution system such that the air flow to each distinct branch alternates between a higher flow rate and a lower flow rate in repeated cycles (applicant's predetermined circuit schematic which Rabie et al. shows in Fig. 3)." Rabie et al., ¶ 9, lines 4-14. In Figs. 2 and 3, Rabie et al. further teaches that the valves assume either an open or closed position to release or block the air supply to their respective membrane module.

10. In Figure 4F, Rabie et al. discloses that the cyclic aeration system has the three recited method steps of:

First method step: The first control valve (second branch) is open and the second control valve (first branch) is closed at time 0 and time 14-20 seconds.

Second method step: Both the first control valve and the second control valve are open at time 0-3 seconds and time 10-13 seconds.

Third method step: The first control valve (second branch) is closed and the second control valve (first branch) is open at time 3-10 seconds.

In Figs. 2 and 3, Rabie et al. discloses the valve set 254 with three valves where each membrane module is aerated in accordance with the three method steps, one after another, until the aeration cycle starts anew with the first membrane module, as recited.

11. There are two further limitations to discuss, both of which Rabie et al. discloses. First, claim 11 recites:

valves, which can assume only either the ***open or closed position****.*

Second claim 11 recites:

> valves, *wherein at the beginning of a second method step, the* control valve *assigned to a* second membrane module *is additionally opened, so that during this method step, two* control valves *are open at the same time and* ***two essentially stationary partial air streams occur****, with which the* first and the second membrane module *are impacted.*

Rabie et al. discloses both limitations shown in bold-type.

12. In Fig. 4C, Rabie et al. discloses that the valves 284 in the aeration system are typically solenoid valves or pneumatic valves (the recited valves which can assume only either the open or closed position) with the solenoid valves being opened or closed electrically and the pneumatic valves being opened and closed by an air circuit. Specifically, Rabie et al. states, "Each slave valve 284 is controlled by a slave device 280, typically a solenoid, pneumatic or hydraulic cylinder or a servo motor." Rabie et al., ¶ 51, lines 3-5. Because valves 284 are on/off valves, Rabie et al. further discloses, " The opening and closing movements of the slave valves 284 are preferably overlapped to minimize the spike in air flow rate and pressure surge shortly after the transition from R_l to R_h mentioned above. Preferably, the opening and closing times of the slave valves 284 are arranged such that the slave valve or valves 284 to any distinct branch of the air delivery network 240 do not start to close until the slave valve or valves 284 to any other distinct branch of the air delivery system 240 are fully open." Rabie et al., ¶ 54, lines 1-9. As such, Rabie et al. discloses the recited period of time during the second method step where the "*two control valves are open at the same time and two essentially stationary partial air streams occurs*."

13. To recap, when the Rabie et al. valves are on/off valves 284, then Rabie et al. discloses that a closed valve will be opened fully, before an open valve begins to close, in order to

minimize the spike in air flow rate and pressure surge. During that time when both valves are fully opened, "two essentially stationary partial air streams occur," as recited.

14. In summary, Rabie et al. anticipates claim 11.

15. Claims 12 and 13 are shown below in italics, with the keyed structure underlined that is used to implement the method. The patentability analysis follows.

Claim 12 (previously presented): Method according to claim 11, wherein to avoid penetration of liquid into air-carrying parts of the <u>*membrane modules*</u>*, a blocking air volume stream flows through all of the feed lines, even when the* <u>*control valves*</u> *are in the closed position, which stream is small in comparison with the aeration air stream that exits when the* <u>*control valve*</u> *is open.*

Claim 13 (previously presented): Method according to claim 12, wherein the blocking air volume stream amounts to less than 5% of that of the volume stream that exits from the corresponding <u>*feed line*</u> *when the* <u>*control valve*</u> *in question is the only one in the open position.*

16. Regarding claims 12 and 13, Rabie et al. discloses these limitations in Figs. 2 and 3 and at ¶ 48. Specifically, in Figs. 2 and 3, Rabie et al. teaches that when the valves are open, the membrane modules experience high air flow rates R_h and, when the valves are closed, the membrane modules experience low air flow rates R_l. Regarding these high and low air flow rates, Rabie et al. discloses, "R_l is typically less than one half of R_h and is often an air off condition with no flow. Within this range, the lower rate of air flow is influenced by the quality

of the feed water 14. An air off condition is generally preferred, but with some feed water 14, the hollow fibre membranes 23 foul significantly even within a short period of aeration at the lower rate. In these cases, better results are obtained when the lower rate of air flow approaches one half of the higher rate. For feed waters in which the rate of fouling is not significant enough to require a positive lower rate of air flow, Rl may still be made positive for other reasons." Rabie et al., ¶ 48, lines 1-11. For example, Rabie et al. continues, "A positive lower rate of air flow may also be used because of leaks on the valves of the valve set 254 or to reduce stresses on the valve set 254 or the air delivery network 240. Regarding leaks, the lower rate of air flow may typically be as much as about 10%, but preferably about 5% or less, of the higher rate of air flow without significantly detracting from the performance achieved with a completely air off condition. Continuing to use valves (which are typically butterfly valves) even after they have developed small leaks decreases the operating expense of the cyclic aeration system 237. Regarding stresses on the valves in the valve set 254 or the air delivery network 240, such stresses can be reduced by purposely not closing the valves entirely. As in the cases of leaks, the lower rate of air flow may be as much as about 10%, but preferably about 5% or less, of the higher rate of air flow typically without significantly detracting from the performance achieved with a completely air off condition." Rabie et al., ¶ 48, lines 17-22.

17. In summary, Rabie et al. anticipates claims 12 and 13.

18. Claim 14 is shown below in italics, with the keyed structure underlined that is used to implement the method. The patentability analysis follows.

Claim 14 (currently amended): Method according to claim 11, wherein the aeration cycle amounts to more than 60 s.

19. Regarding claim 14, Rabie et al. discloses, "In one such embodiment, the cyclic aeration system is configured and operated to provide air to a branch of the air delivery network alternating between a higher flow rate and a lower flow rate in cycles of 120 seconds or less." Rabie et al., ¶ 11, lines 9-13.

20. Claims 15 and 17 are shown below in italics, with the keyed structure underlined that is used to implement the method. The patentability analysis follows.

Claim 15 (currently amended): Method according to claim 11, further comprising aerating, within the aeration cycle, all of the <u>membrane modules</u> are aerated with partial air streams, at the same time, once or multiple times, which partial air streams result from opening of all of the <u>control valves</u>.

Claim 17 (currently amended): Method according to claim 11, wherein all of the <u>membrane modules</u> are aerated simultaneously, by means of opening the assigned <u>control valves</u>, between the aeration cycles.

21. In the "Background of the Invention" section, Rabie et al. discloses, "With typical aeration systems, an operator increases the rate of air flow to the aerators if more cleaning is desired. . . . Conversely, an operator typically decreases the rate of air flow to the aerators if less cleaning is desired. . . . Alternately, some operators reduce the average rate of air flow by providing air intermittently." Rabie et al., ¶ 5, lines 1-3, 6-7, and 10-11. In other words, prior to the Rabie et al. invention, "all of the membrane modules were aerated . . . at the same time, once or multiple times," by opening and closing all of the control valves at the same time, as recited in

claim 15. Further, "all of the membrane modules are aerated simultaneously, by means of opening the assigned control valves, between the aeration cycles," as recited in claim 17.

22. Claim 16 is shown below in italics, with the keyed structure underlined that is used to implement the method. The patentability analysis follows.

Claim 16 (previously presented): Method according to claim 11, wherein different groups of at least three membrane modules are impacted with the total air stream, within the aeration cycle, one group after the other, whereby the air stream distributes itself approximately uniformly over the membrane modules that belong to the group, by means of opening the control valves, and whereby the control valves on all the other membrane modules are closed.

23. Regarding claim 16, Rabie et al. discloses the recited limitations in Figs. 2 and 3 where the air flow is split into three air delivery branches 240 and each air delivery branch is split into eight conduit aerators 238. As such, there are three "different groups of at least three membrane modules" as recited in claim 16.

24. Claims 18 and 19 are shown below in italics, with the keyed structure underlined that is used to implement the method. The patentability analysis follows.

Claim 18 (previously presented): Method according to claim 11, wherein a group of at least three membrane modules is impacted with the air stream, in each instance, between the aeration cycles, whereby a first group of membrane modules is selected between the first and the second aeration cycle, a second group of membrane modules is selected between the second and the third aeration cycle, etc.

Claim 19 (previously presented): Method according to claim 18, wherein the time during which all of the membrane modules are or a group of at least three membrane modules is aerated at the same time is at least just as long as the time interval during which the membrane modules are individually aerated during the aeration cycle.

25. Regarding claims 18 and 19, Rabie et al. discloses these limitations of one or more membrane groups being provided air flow between the aeration cycles [claim 18] where the time between aeration cycles is at least as long as the time during aeration cycles [claim 19]. The specific context is that permeation times (applicant's time between aeration cycles with low air flow rates to all membrane modules) is interspersed with backwash time where the aeration cycle (applicant's aeration cycle as described in claim 1) is timed to coincide with the backwash cycle as each set of membranes is backwashed in turn.

26. Specifically, Rabie et al. refers to Figure 5 and teaches the "Use of Cyclic Aeration to Provide Efficient Intermittent Aeration." Rabie et al., ¶ 71. Rabie et al. further teaches, "Use of the cyclic aeration system 237 to provide efficient intermittent aeration will now be described with reference to the following embodiment, it being understood that the invention is not limited to the embodiment. Referring to FIG. 5, an aeration system 237 is shown for use in providing intermittent aeration to six membrane modules 20 (shown with dashed lines) in a filtration tank 412. The filtration tank 412 has six filtration zones (also shown with dashed lines) corresponding to the six membrane modules 20." Rabie et al., ¶ 72, lines 1-10.

27. Rabie et al. discloses, "The air delivery network 240 has six distinct branches each connected to a header 251 in a filtration zone. Each header 251 is in turn connected to conduit aerators 238 mounted generally below the membrane modules 20. The valve set 254 and valve

controller 256 are configured and operated to provide air from the air supply 242 to the air delivery network 240 in a 7.5 minute cycle in which air at the higher rate is supplied for about 75 seconds to each branch of the air delivery network 240 in turn. While a branch of the air delivery network 240 is not receiving air at the higher rate, it receives air at the lower rate. Accordingly, each header 251 receives air at the higher rate for 75 seconds out of every 7.5 minutes. Operation of the air supply 242, however, is constant and an air supply sized for one manifold 251 is used to service six such manifolds." Rabie et al., ¶ 73.

28. Regarding timing aeration with backwashing, Rabie et al. discloses, "It is preferable if backwashing of the membrane modules 20 is also performed on the membrane modules in turn such that backwashing of a membrane module 20 occurs while the membrane module 20 is being aerated." Rabie et al., ¶ 74, lines 1-4. In one pilot study, Rabie et al. further teaches, "Each cycle involved 15 minutes of permeation through the membrane modules 20 and 15 seconds of backwashing. The 75 seconds of aeration was timed so that there was 30 seconds of aeration before the backpulse, aeration during the backpulse, and 30 seconds of aeration after the backpulse. The test suggests that if cycled aeration is timed to coincide for each manifold 251 with the backwashing of the associated membrane module 20, then about 12 membrane modules 20 could be serviced by a single air supply 242 as part of the cyclic aeration system 237." Rabie et al., ¶ 75, lines 7-17.

29. While the pilot study disclosed no aeration during permeation, Rabie et al. discloses that aeration at a low rate frequently occurs during permeation. Rabie et al., ¶ 75, lines 1-7. Specifically, at ¶ 48, Rabie et al. teaches, "For feed waters in which the rate of fouling is not significant enough to require a positive lower rate of air flow, Rl may still be made positive for

other reasons. With some aerators or air delivery systems, a positive lower rate of air flow may be desired, for example, to prevent the aerators from becoming flooded with tank water 18 at the lower rate of air flow. While periodic flooding is beneficial in some aerator designs, in others it causes unwanted foulants to accumulate inside the aerator. A positive lower rate of air flow may also be used because of leaks in the valves of the valve set 254 or to reduce stresses on the valve set 254 for the air delivery network 240. Regarding leaks, the lower rate of air flow may typically be as much as about 10%, but preferably about 5% or less, of the higher rate of air flow without significantly detracting from the performance achieved with a completely air off condition. Continuing to use valves (which are typically butterfly valves) even after they have developed small leaks decreases the operating expense of the cyclic aeration system 237. Regarding stresses on the valves in the valve set 254 or the air delivery network 240, such stresses can be reduced by purposely not closing the valves entirely. As in the cases of leaks, the lower rate of air flow may be as much as about 10%, but preferably about 5% or less, of the higher rate of air flow typically without significantly detracting from the performance achieved with a completely air off condition."

30. To recap, Rabie et al. discloses one or more membrane groups (Fig. 5, membranes modules 20) being provided air flow (air blower 242, valve set 254, air delivery system 240) between the aeration cycles [claim 18] where the time (15 minutes) between aeration cycles is at least as long as the time (7.5 minutes) during aeration cycles [claim 19].

31. In summary, Rabie et al. anticipates independent claim 11 and dependent claims 12-19.

Claim Rejections - 35 USC § 103

32. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

33. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

34. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

35. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rabie et al. (U.S. Patent Pub. No. 2003/0127389 A1, Jul. 10, 2003), as applied to claim 11 above.

36. Claims 20 is shown below in italics, with the keyed structure underlined that is used to implement the method. The patentability analysis follows.

Claim 20 (new): Method according to claim 11, wherein the aeration cycle amounts to more than 120 s.

37. Regarding claim 20, Rabie et al. discloses, "In one such embodiment, the cyclic aeration system is configured and operated to provide air to a branch of the air delivery network alternating between a higher flow rate and a lower flow rate in cycles of 120 seconds or less." Rabie et al., ¶ 11, lines 9-13. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have run the Rabie et al. aeration cycle for 121 seconds (recited as "more than 120 s") instead of the disclosed 120 seconds because this is an example of a simple substitution of one known element (121 seconds of aeration) for another (120 seconds of aeration) to obtain predictable results (the membranes are cleaned by aeration).

38. In summary, Rabie et al. discloses or suggests all claim 20 limitations.

Response to Arguments

39. Applicant's arguments filed July 6, 2009 have been fully considered but they are not persuasive.

40. Applicant's arguments are listed below, with the examiner's response after each argument.

a. Regarding claim 11, applicant argues, "Claim 11 uses control valves which can assume only either the open or closed position" and "during the second step two essentially stationary partial air streams are set." Applicant's Remarks, p. 13, lines 5-7 and p. 14, lines 7-8. Applicant continues, "Rabie et al. fails to disclose or suggest the specific steps of Applicant's method as set forth in amended claim 11, including

opening two control valves at the same time so that two essentially stationary partial air streams occur." Applicant's Remarks, p. 15, line 22 to p. 16, line 1.

The examiner's response is the same as paragraphs 11-13 in the above patentability analysis. To recap, when the Rabie et al. valves are on/off valves 284 (Fig. 4C and ¶ 51, lines 3-5) then Rabie et al. discloses that a closed valve will be opened fully, before an open valve begins to close, in order to minimize the spike in air flow rate and pressure surge. Rabie et al., Fig. 4C and ¶ 51, lines 3-5; ¶ 54, lines 1-9. During that time when both valves are fully opened, "two essentially stationary partial air streams occur," as recited.

b. Regarding claim 16, applicant argues, "Rabie et al. fails to disclose this step of claim 16 of different groups of at least three membrane modules being uniformly impacted by the overall air stream, one group after the other" because "FIGS. 2 and 3 of Rabie et al. disclose three air delivery branches 240 and conduit aerators 238 receiving equal impact at the end of the cycle, but at no time during the cycle do the groups of three membranes receive a uniform impact from the air stream because those three membranes are open while the other membranes are closed." Applicant's Remarks, p. 20, lines 15-18 and p. 20, line 24 to p. p. 21, line 3.

Since this is the same issue as was addressed in Point (a) above, the examiner responds as in Point (a) above.

c. Regarding claim 18, applicant argues, "Applicant's claim 18 recites that the group of at least three membrane modules is impacted with the air stream. This air stream is the stream referred to in amended claim 11." Applicant's Remarks, p. 21, lines 12-15.

Since this is the same issue as was addressed in Point (a) above, the examiner responds as in Point (a) above.

Conclusion

41. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

42. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

43. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Denise R. Anderson whose telephone number is (571)270-3166. The examiner can normally be reached on Monday through Thursday, from 8:00 am to 6:00 pm.

44. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Walter D. Griffin can be reached on 571-272-1447. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

45. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/DRA/

/Walter D. Griffin/
Supervisory Patent Examiner, Art Unit 1797